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ABSTRACT

This report is organized in two volumes: Volume 1--"Executive Summary," and Volume 2--Main Report and Appendices." Volume 1 explains that the purpose of this study was to identify, review, and assess the literature concerned with postsecondary education of disadvantaged youth for internal validity, external validity, and policy utility. The scholarship in this area fell into two categories: (1) basic research on the variables which affect the entrance, persistence, and achievement of students from disadvantaged environments; (2) evaluative research which deals with the equity, effectiveness, and efficiency of programs designed to counteract the impact of these variables. While basic research has been generally adequate, evaluative research on programs has been commonly deficient in measurement instruments; in the failure to measure effectiveness, efficiency, and equity in terms of immediate program objectives; and in the lack of systematic information and feedback systems. Research on causal variables and evaluative research on compensatory programs has been consistent in identifying lack of basic academic skills and poor study habits as the most powerful limiting factors in equalizing educational opportunities for the disadvantaged. A federally sponsored, nationally integrated competency-based developmental skills program on all levels of education is needed. (Author/JM)

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Volume 1 - Executive Summary

AN EVALUATION OF POLICY RELATED RESEARCH ON POSTSECONDARY EDUCATION FOR THE DISADVANTAGED

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ABSTRACT

The purpose of this study was to identify, review and assess the literature concerned with postsecondary education of disadvantaged youth, for internal validity, external validity and policy utility. The scholarship in this area fell into two categories:

- Basic research on the variables which affect the entrance, persistence, and achievement of students from disadvantaged environments, and

- Evaluative research which deals with the equity, effectiveness and efficiency of programs designed to counteract the impact of these variables.

While basic research has been generally adequate, evaluative research on programs has been commonly deficient in measurement instruments; in the failure to measure effectiveness, efficiency, and equity in terms of immediate program objectives; and in the lack of systematic information and feedback systems.

Research on causal variables and evaluative research on compensatory programs has been consistent in identifying lack of basic academic skills and poor study habits as the most powerful limiting factors in equalizing educational opportunities for the disadvantaged. Despite many postsecondary institutional policy changes, and billions of dollars in government financial support, academic high risk students have had the least chance of sharing the benefits postsecondary education, training, and certification provided for entrance into the more valued occupations and professions.

Competency in oral and written communication and basic reading and math skills cannot be left to chance. Specially-trained personnel are needed to staff developmental skills programs incorporated into the regular academic schedule. The findings of this study point in one major direction--the need for a federally sponsored, nationally integrated competency-based developmental skills program on all levels of education: elementary, secondary, and postsecondary. The report is organized into two volumes: Volume I--"Executive Summary," and Volume II--"Main Report and Appendices."

FOREWORD

This evaluation of policy-related research on post-secondary education is one of 20 in a series of projects on the Evaluation of Policy-Related Research in the Field of Human Resources, funded by the Division of Social Systems and Human Resources in the Research Applied to National Needs (RANN) Program of the National Science Foundation.

A large body of policy related research on human resources has been created over the last quarter century. However, its usefulness to decision makers has been limited because it has not been evaluated comprehensively with respect to technical quality, usefulness to policy makers, and potential for codification and wider diffusion. In addition, this research has been hard to locate and not easily accessible. Therefore, systematic and rigorous evaluations of this research are required to provide syntheses of evaluated information for use by public agencies at all levels of government and to aid in the planning and definition of research programs.

Recognizing these needs, the Division of Social Systems and Human Resources issued a Program Solicitation in January 1973 for proposals to evaluate policy-related research in 21 categories in the field of human resources. This competition resulted in 20 awards in June 1973.

Each of the projects was to: 1) Evaluate the internal validity of each study by determining whether the research used appropriate methods and data to deal with the questions

asked: 2) Evaluate the external validity of the research by determining whether the results were credible in the light of other valid policy-related research; 3) Evaluate the policy utility of specific studies or sets of studies bearing on given policy instruments; 4) Provide decision makers, including research funders, with an assessed research base for alternative policy actions in a format readily interpretable and useable by decision makers.

Each report was to include an analysis of the validity and utility of research in the field selected, a synthesis of the evidence, and a discussion of what, if any, additional research is required.

The following is a list of the awards showing the research area evaluated, the organization to which the award was made, and the principal investigator.

(1) An Evaluation of Policy Related Research on New Expanded Roles of Health Workers - Yale University, School of Medicine, New Haven, Connecticut, 06520; Eva Cohen

(2) An Evaluation of Policy Related Research on the Effectiveness of Alternative Allocation of Health Care Manpower - Interstudy, 123 East Grant St., Minneapolis, Minnesota, 55403; Aaron Lowin

(3) An Evaluation of Policy Related Research on Effects of Health Care Regulation - Policy Center, Inc., Suite 500, 789 Sherman, Denver, Colorado, 80203; Patrick O'Donoghue

(4) An Evaluation of Policy Related Research on Trade-Offs Between Preventive and Primary Health Care - Boston University Medical Center, Boston University School of Medicine, Boston, MA, 02215; Paul Gertman

(5) An Evaluation of Policy Related Research on Effective-

ness of Alternative Programs for the Handicapped- Rutgers University, 165 College Avenue, New Brunswick, New Jersey, 08901; Monroe Berkowitz

(6) An Evaluation of Policy Related Research on Effects of Alternative Health Care Reimbursement Systems - University of Southern California, Department of Economics, Los Angeles, California, 9007; Donald E. Yett

(7) An Evaluation of Policy Related Research on Alternative Public and Private Programs for Mid-Life Redirection of Careers - Rand Corporation, 1700 Main Street, Santa Monica, California, 90406; Anthony H. Pascal

(8) An Evaluation of Policy Related Research on Relations between Industrial Organization, Job Satisfaction, and Productivity, Brandeis University, Florence G. Heller Graduate School for Advanced Studies in Social Welfare, Waltham, MA, 02154; Michael J. Brower

(9) An Evaluation of Policy Related Research on Relations between Industrial Organization, Job Satisfaction and Productivity - New York University, Department of Psychology, New York, New York, 10003; Raymond A. Katzell

(10) An Evaluation of Policy Related Research on Productivity, Industrial Organization and Job Satisfaction Case Western Reserve University, School of Management, Cleveland, Ohio, 44106; Suresh Srivastva

(11) An Evaluation of Policy Related Research on Effectiveness of Alternative Methods of Reduce Occupational Illness and Accidents - Westinghouse Behavioral Safety Center, Box 948, American City Building, Columbia, Maryland, 21044; Michael Pfeifer

(12) An Evalua ion of Policy Related Research on the Impact of Unionization on Public Institutions - Contract Research Corporation, 25 Flanders Road, Belmont, Massachusetts; Ralph Jones

(13) An Evaluation of Policy Related Research on Projection of Manpower Requirements - Ohio State University, Center for Human Resources Research, Columbus, Ohio, 43210; S. C. Kelley

(14) An Evaluation of Policy Related Research on Effectiveness of Alternative Pre-Trial Intervention Programs - ABT Association, Incorporated, 55 Wheeler Street, Cambridge, Massachusetts, 02138; Joan Mullen

(15) An Evaluation of Policy Related Research on the Effectiveness of Pre-Trial Release Programs - National Center for State Courts, 1660 Lincoln Street, Denver, Colorado, 80203; Barry Mahoney

(16) An Evaluation of Policy Related Research on Effectiveness of Volunteer Programs in the Area of Courts and Corrections - University of Illinois, Department of Political Science, Chicago Circle, Box 4348, Chicago, Illinois, 60680; Thomas J. Cook

(17) An Evaluation of Policy Related Research on Effectiveness of Juvenile Delinquency Prevention Program - George Peabody College for Teachers, Department of Psychology, Nashville, Tennessee, 37203; Michael C. Dixon

(18) An Evaluation of Policy Related Research on Exercise of Discretion by Law Enforcement Officials - College of William and Mary Metropolitan Building, 147 Granby Street, Norfolk, Virginia, 23510; W. Anthony Fitch

(19) An Evaluation of Policy Related Research on Exercise of Police Discretion - National Council of Crime and Delinquency Research Center, 609 2nd Street, Davis, California, 95616; M. G. Neithercutt

(20) An Evaluation of Policy Related Research on Post Secondary Education for the Disadvantaged - Mercy College of Detroit, Department of Sociology, Detroit, Michigan, 48219; Mary Janet Mulka

A complementary series of awards were made by the Division of Social Systems and Human Resources to evaluate the policy-related research in the field of Municipal Systems, Operations, and Services. For the convenience of the reader, a listing of these awards appears below:

(1) Fire Protection - Georgia Institute of Technology, Department of Industrial and Systems Engineering, Atlanta, Georgia, 30332; D. E. Fyffe

(2) Fire Protection - New York Rand Institute, 545 Madison Avenue, New York, New York, 10022, Arthur J. Swersey

(3) Emergency Medical Services - University of Tennessee, Bureau of Public Administration, Knoxville, Tennessee, 37916. Hyrum Plaas

(4) Municipal Housing Services - Cogen Holt and Associates, 956 Chapel Street, New Haven, Connecticut, 06510; Harry Wexler

(5) Formalized Pre-Trial Diversion Programs in Municipal and Metropolitan Courts - American Bar Association, 1705 DeSales Street, N.W. Washington, D. C., 20036; Roberta-Rovner-Pieczenik

(6) Parks and Recreation - National Recreation and Park Association, 1601 North Kent Street, Arlington, Virginia, 22209, The Urban Inst., 2100 M St., N.W., Washington, D. C. 20037· Peter J. Verhoven

(7) Police Protection - Mathematica, Inc., 4905 Del Ray Avenue, Bethesda, Maryland, 20014; Saul I. Gass

(8) Solid Waste Management Massachusetts Institute of Technology, Department of Civil Engineering, Cambridge, Massachusetts, 02139; David Marks

(9) Citizen Participation Strategies - The Rand Corporation, 2100 M. Street, N. W., Washington, D. C. 20037; Robert Yin

(10) Citizen Participation: Municipal Subsystems - The University of Michigan, Program in Health Planning, Ann Arbor, Michigan, 48104; Joseph L. Falkson

(11) Economic Development - Ernst & Ernst, 1225 Connecticut Avenue, N.W., Washington, D. C. 20036; Lawrence H. Revzan

(12) Goal of Economic Development - University of Texas-Austin, Center for Economic Development, Department of Economics, Austin, Texas, 78712; Niles M. Hansen

(13) Franchising and Regulation - University of South Dakota, Department of Economics, Vermillion, South Dakota, 57069; C. A. Kent

(14) Municipal Information Systems - University of California, Public Policy Research Organization, Irvine, California, 92664; Kenneth L. Kraemer

(15) Municipal Growth Guidance Systems - University of Minnesota, School of Public Affairs, Minneapolis, Minnesota, 55455; Michael E. Gleeson

(16) Land Use Controls - University of North Carolina, Chapel Hill, Center for Urban and Regional Studies, Chapel Hill, North Carolina, 27514; Edward M. Bergman

(17) Land Use Controls - The Potomac Institute, Incorporated, 1501 Eighteenth Street, N. W., Washington, D. C. 20036; Herbert M. Franklin

(18) Municipal Management Methods and Budgetary Processes - The Urban Institute, 2100 M. Street, N. W., Washington, D. C., 20037; Wayne A. Kimmel

(19) Personnel Systems - Georgetown University - Public Service Lab., Washington, D. C. 20037; Selma Mushkin

Copies of the above cited research evaluation reports for both Municipal Systems and Human Resources may be obtained directly from the principal investigator or from the National Technical Information Service (NTIS) U. S. Department of Commerce, 5285 Port Royal, Springfield, Virginia, 22151 (Telephone: 703/321-8517)

This research evaluation by Mary Janet Mulka of Mercy College of Detroit and Edmund J. Sheerin of the University of Detroit on An Evaluation of Policy Related Research on Post-Secondary Education for the Disadvantaged was prepared with the support of the National Science Foundation. The opinions, findings, conclusions, or recommendations are solely those of the authors.

It is a policy of the Division of Social Systems and Human Resources to assess the relevance, utility, and quality of the projects it supports. Should any readers of this report have comments in these or other regards, we would be particularly grateful to receive them as they become essential tools in the planning of future programs.

Lynn P. Dolins
Program Manager
Division of Social Systems
and Human Resources

VOLUME I

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SUMMARY

Scope and Objectives

This study has aimed to evaluate the policy-related research literature concerned with postsecondary education of disadvantaged youth. The evaluation has been limited to that scholarship which is either currently or potentially available to decision makers. The broad objectives outlined by the Division of Social Systems and Human Resources in the Research Applied to National Needs (RANN) Program of the National Science Foundation applied to this project were:

- to systematically and rigorously evaluate that literature concerned with equalizing the educational opportunities of the disadvantaged with those of the advantaged;
- to provide a more rigorous basis for future research projects aimed at equalizing educational opportunities; and
- to make policy related research literature on equalizing educational opportunities more usable and accessible to policy makers.

A series of specific tasks were defined to accomplish these broad objectives; (1) to assess the internal and external validity and consistency of research dealing with equalizing educational opportunities for postsecondary education; (2) to establish principles and criteria for judging the policy relevance of particular studies dealing with postsecondary education and of

sets of related research bearing on given policy instruments; and (3) to provide a design for dissemination and utilization of the results.

Background for Study

The introductory section lays out the terrain over which our inquiry traveled. Terms proper to the research--disadvantaged, equalizing educational opportunities, postsecondary education, and policy related research--were defined in order to provide a framework for our analysis.

Disadvantaged

As it is used in postsecondary education the term "disadvantaged" is defined vaguely and inconsistently. There is no single comprehensive definition which contributes to the development of a tight, systematic body of knowledge. The term, as we have used it, has broader meaning than racial or ethnic minority status and includes degrees of disadvantagedness. It designates groups of students from socially or economically deprived backgrounds who have little opportunity to enter a postsecondary institution and little chance for success when admitted. (See Figure 1)

Equalizing educational opportunities refers to the process of eliminating sociocultural, ecological, and personality factors (lacking cognitive or affective skills) which impede access, achievement, and persistence in postsecondary institutions.

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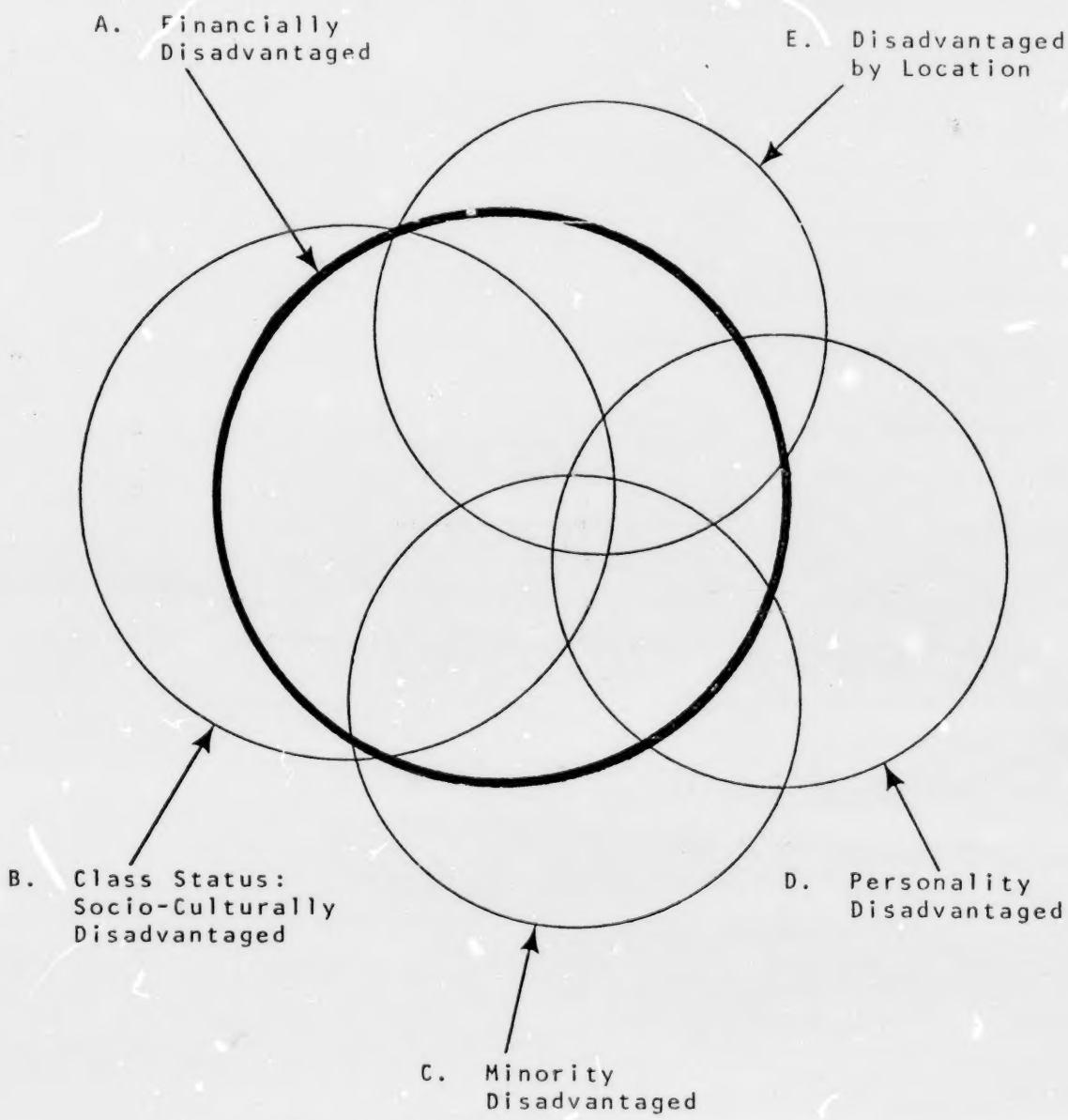
FIGURE 1

VENN DIAGRAM OF DISADVANTAGED GROUPS OF POPULATIONS



Policy related research includes two types of studies: basic research on variables associated with creating disadvantaged characteristics or disadvantaged students; and evaluative research on the effectiveness, efficiency, and equity of programs designed to meet the needs of disadvantaged populations.

Variables were classified as either policy or situational. Policy variables are those which can be or have been amenable to direct policy control. Situational variables are those which can neither be manipulated nor subjected to direct policy control.

Our evaluative research on programs focused on an analysis of available descriptions and evaluations of institutional, state, and federal programs. Also included were national reports more properly designated as policy analysis. The body of literature selected for study likewise included special task force and commission reports. Narratives--such as think pieces, state of the art, and advocacy papers--based on empirical findings, providing insights into trends and offering a basis for comparison with more scientific reports, were also included. Analyses of the many formal and informal learning opportunities offered by various organizations and groups were excluded from the study because there were no comprehensive listings of studies of such opportunities.

The most suitable definition of postsecondary education was the working definition proposed by the Commission on

Financing of Postsecondary Education (1973):

> Postsecondary education consists of formal instruction, research, public service, and other learning opportunities offered by educational institutions that primarily serve persons who have completed secondary education or who are beyond the compulsory school attendance age and that are accredited by agencies officially recognized for that purpose by the U.S. Office of Education or are otherwise eligible to participate in federal programs. (p. 20)

LITERATURE SEARCH AND EVALUATION

The results of an ERIC search, the titles suggested by legislators, education board commissioners, and experts and various bibliographies, were combined into one bibliography of over 600 works. The criteria for selecting works for specific evaluation from this listing did not follow strict canons of scientific research because it was decided to include studies which could not be classified as research, but which contributed to an understanding and analysis of the problem of equalizing educational opportunity. These studies were classified as narrative literature. Consequently, four categories emerged: 1) state of the art and position papers (narrative form); 2) national task force and commission reports (policy analysis studies); 3) final evaluation reports (evaluative research): 4) exploratory descriptive and analytical studies (basic research).

In the end, from this vast body of literature, 128 works touching the fields of political science, economics, psychology, sociology, and education, were individually evaluated.

In order to ensure interviewer consistency in the evaluations, and to derive general conclusions about the overall results of many research efforts, a multifaceted evaluation instrument was devised. This instrument consisted of descriptors and complex criteria to provide information about the orientation of the literature, the validity of its methodology, the validity of findings, conclusions, and recommendations, and the adequacy of the presentation and communication format.

The Evaluation Form

The evaluation form was divided into four distinct parts:

I. Evaluation of Orientation
Specification of policymakers; of target population, of scope and objectives; clarity and documentation; specification of outcomes; ordering of objectives according to long, medium or short range; underlying values and ideology; theoretical and/or conceptual framework or approach; hypotheses and major concepts of the study.

II. Methodology

. Basic Research
Research Design: internal validity--control for potential sources of errors, suitability, replicability, and desirability of design. Data Collection: method, validity and reliability; Sampling: type, unit, size, representativeness, assumption of distribution, suitability, interpretation and generalizability.

. Evaluative Research on Programs
Effectiveness measured by outcomes, immediate or remote objectives; specification of measurement scales, unit of outcomes, and degree of effectiveness; Efficiency: measurement of inputs of time, money, manpower and resources; ratio of inputs to outcomes. Equity: target population, justification, priority and contact. Comprehensiveness: total program, component parts; Feedback system; Feasibility: utility, and suitability of program for national problems.

- Narrative Literature
  Logical order, and persuasive power; Factual data: sources, accuracy, significance, and relevance; interpretation and reliability of factual data and projections.

III. Evaluation of Results
Findings: accuracy, bias and significance; Conclusions: internal validity, consistency with findings; external validity, i.e., generalizability and consistency with other works in the field. Recommendations: potential effectiveness, efficiency, equity and feasibility.

IV. Presentation and Communication
Presentation: format, readability, completeness, comprehensiveness, and level of persuasion. Communication: timing, pre-socialization of policy-makers during the research process; Dissemination and utilization of results (See Vol. II, Appendix B).

Categories of Research

The research literature on equalizing educational opportunities on the postsecondary level fell into two categories:

- basic research on the variables which affect the entrance, persistence, and achievement of students from disadvantaged environments, and
- evaluative research which deals with the equity, effectiveness, and efficiency of programs designed to counteract the impact of these variables.

BASIC RESEARCH ON VARIABLES

Studies considered to be basic research were categorized as exploratory, descriptive, and analytical. The relationship between variables which pertain to equality of opportunity in postsecondary education was the primary focus in every type of basic research. Descriptive studies predominated; exploratory and analytical designs were used less frequently.

The quality of basic research was adequate in most aspects, except in the area of sampling and randomization. Mortality tended to jeopardize many longitudinal studies. Despite weaknesses in design and sampling techniques, a consistency emerged from the basic research literature on variables instrumental in "producing" the disadvantaged student.

For the purpose of clarity and policy usefulness, these variables were organized according to the three main systems which impinge on human behavior: the sociocultural system, the individual personality system, and the ecological system. The biological system was excluded because it is remote from policy-making on account of the present level of genetic science and technology.

Variables most frequently cited in the literature were summarized in the following eleven propositions which synthesize current scientific thinking and agreement about that which causes or is associated with the disadvantaged student. Each variable has been studied within its proper system--sociocultural, personality and ecological--and presented as it bears on access, achievement, and persistence. Figure 2 illustrates the model used to synthesize the findings of basic research on equalizing educational opportunities for the disadvantaged.

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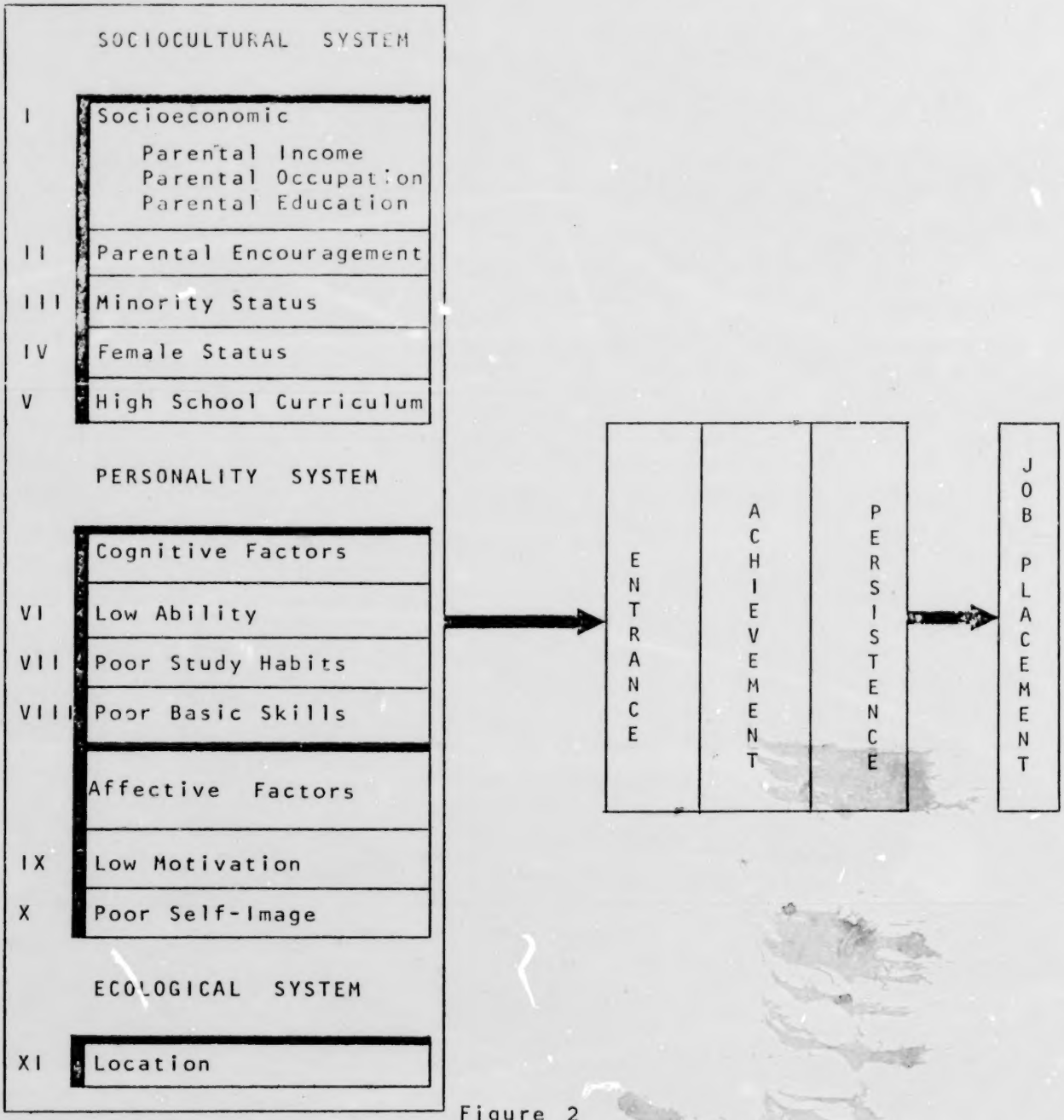


Figure 2

SYSTEMS AND VARIABLES AFFECTING
COLLEGE ENTRANCE, ACHIEVEMENT, AND PERSISTENCE

Synthesis of Basic Research

Sociocultural Variables

I. Low socioeconomic status (SES), measured by father's income, occupation, and education, negatively affects postsecondary access, choice of instituion, achievement and persistence.

II. Low parental encouragement limits equality of opportunity more than SES for entrance, achievement, and persistence.

III. Minority status in general limits equality of opportunity for access, achievement, and persistence.

IV. Female status limits equality of opportunity for access, and persistence, but not for achievement.

V. Choice of high school curriculum is the most critical socio-cultural factor in limiting access, achievement, and persistence.

Personality Variables

Cognitive:

VI. Low academic ability limits equality of opportunity for access achievement, and persistence more than low SES but less than poor academic self-image.

VII. Poor study habits limit equality of opportunity for access, achievement, and persistence.

VIII. Poor basic academic skills in reading, writing and mathematics limit equality of opportunity for access, achievement, and persistence.

Affective:

IX. Poor academic self-image limits equality of opportunity for access, achievement, and persistence more than low SES.

X. Low academic motivation limits equality of opportunity for access, achievement, and persistence.

Ecological Variables

XI. Physical and psychological distance from a postsecondary institution limits equality of opportunity for access.

Policy Implications of Basic Research

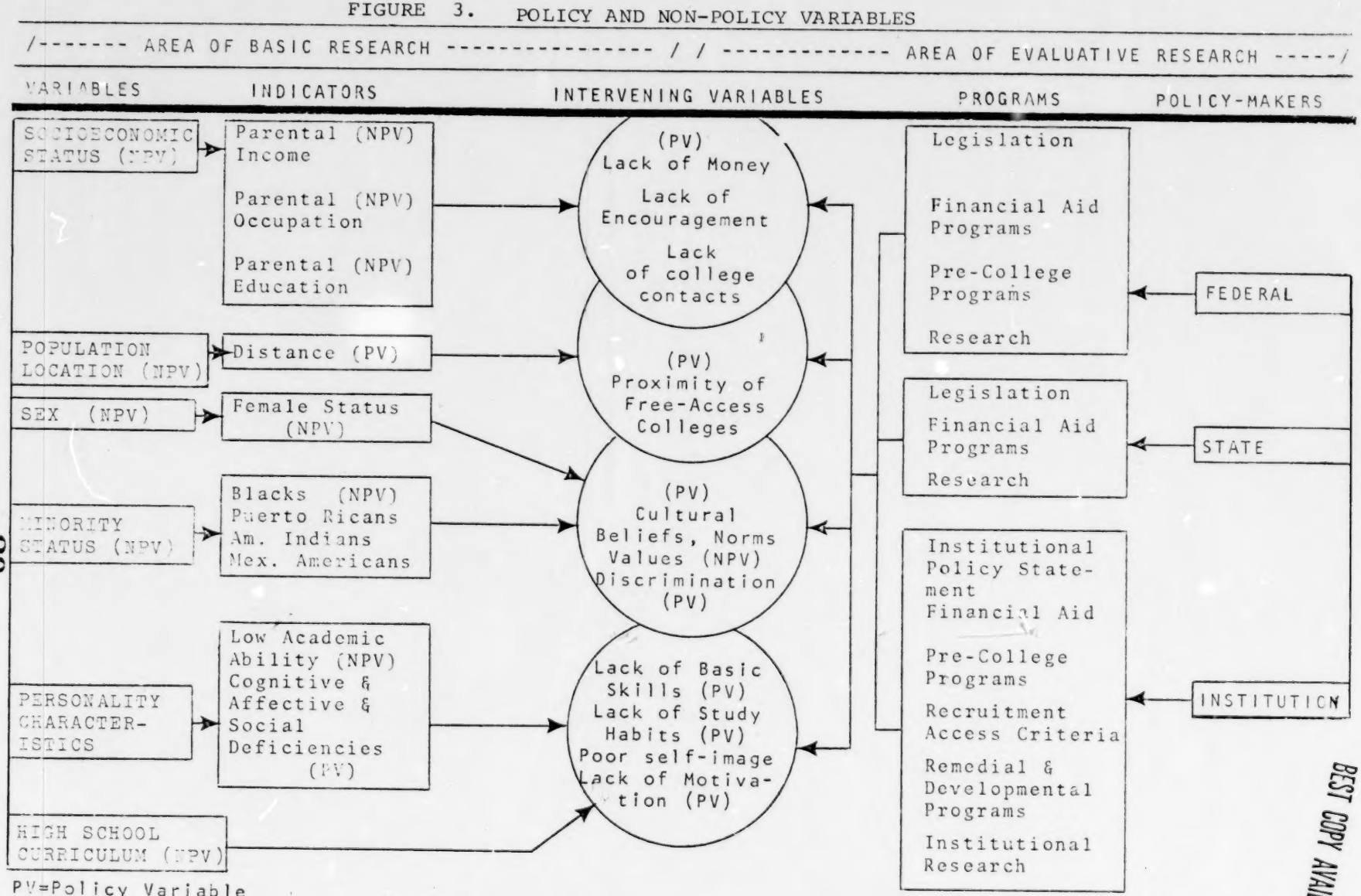
The major policy question relative to the variables affecting the disadvantaged population is whether policy makers can manipulate these variables. If the variables cannot be directly manipulated, through what intermediary mechanism then do they operate; and can the policy maker control or counteract their negative effects? To answer these questions, additional basic research is still required on the intermediary mechanisms through which non-policy variables operate. (Figure 2)

The following implications for individual variables studied were drawn:

Socioeconomic Status (a non-policy variable)

Socioeconomic status cannot be manipulated directly by policy-makers; therefore, identification of and research on intermediary mechanisms through which low socioeconomic status operates is critical. Little research has been done on any of these mechanisms except on the lack of finance, the most manipulable variable of all, and the one which has been the prime focus of most federal efforts. Many other low SES intermediary mechanisms, however, limit access, achievement, and persistence, which should be researched: such as beliefs

FIGURE 3. POLICY AND NON-POLICY VARIABLES



PV=Policy Variable
NPV= Non-Policy Variable=Situational Variable

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and values, praise and punishment, the setting of unrealistic goals without the necessary socialization in regard to means, and so forth.

Parental Encouragement (policy variable)

By the time a student graduates from high school parental encouragement has become a non-policy variable and lack of encouragement by that time has already had its negative effect. In itself, however, this variable is directly manipulable in several ways: mass media, parent-teacher conferences, adult education, etc. The question of counselor-surrogates should also be tested as an alternative means of encouragement at the postsecondary level.

Minority and Sex Status (non-policy variables)

Indirectly the federal government attempted to manipulate the effect of minority and sex status by the 1964 Civil Rights Act. It still remains a question for research, however, whether certain ethnic cultural patterns of behavior, distinct from low socioeconomic class status, tend to block access, persistence, and achievement. In other words, are there any minority cultural patterns of thinking, feeling, and believing, any value patterns, or any linguistic interference producing negative effects?

Curriculum (policy variable)

The secondary curriculum followed by students is not a policy variable, once the curriculum is completed. It is already a fact of history. Furthermore, the competencies necessary for success in an academic institution can often not be acquired within a summer or a semester program. Thus, the decision to follow a college preparatory curriculum or a general curriculum has far reaching consequences and cannot be made lightly. Disadvantaged youth receive little help at home or from peers in making this important decision. The major policy question is whether the track system should be abolished for a more general basic curriculum. At present, however, an alternative policy of better counseling would help alleviate some of the disastrous consequences of electing a vocational-technical track and later deciding one wants to enter an academic postsecondary institution.

Basic Deficiencies in Academic Skills (policy variables)

Basic skills can be taught and learned; consequently, from the point of view of the educational institution, lack of basic skills is a policy variable. There have been serious deficiencies in the evaluation of compensatory programs on the postsecondary level generally aimed at the improvement of basic skills. There is little theoretical or policy justification for measuring programs aimed at skill development by persistence in

a program or in the academic institution, or by the grade point average attained in the course or combined courses. Is it not possible for students lacking basic skills to graduate from college in the same manner that they had graduated from high school? Is a high school diploma an indication that students have gained competencies on a level acceptable of secondary school standards? Why should students be expected to gain in one semester or two what they failed to achieve in basic skill competencies in twelve years of schooling? Why is there the expectation that postsecondary institutions can succeed where primary and secondary institutions have failed? Should not academic tasks be achieved at their proper stage? And should primary and secondary institutions not be held accountable for their failure? Should the cure not be applied to the location and cause of the problem as well as to its effects? This major policy question, however, is posed not as an either/or proposition, but rather as a both/and proposition.

Poor Study Habits (policy variable)

This variable is directly amenable to change and appears to be one of the key intervening mechanisms through which most other variables--the sociocultural and the personality characteristics--operate. Good study habits are crucial for achievement. Nevertheless little empirical evidence exists on how best to instill assiduity, efficient use of time and good scheduling

habits, or how to provide study environments for the disadvantaged.

Location (policy variable)

Although location has been studied, more basic research is needed to indicate what is the radius beyond which the disadvantaged student becomes further handicapped.

In summary, the heart of decision making is the policy variable. And it is interesting that the major variables which limit access, achievement, and persistence have been classified as policy variables: lack of basic academic skills, poor study habits, poor academic self-image, and poor motivation, and the student's access to a postsecondary institution. Other variables studied inhibit the student's ability to benefit from postsecondary education; however, their limiting effect is not as great. The challenge to the policy-makers is clear: to support programs aimed directly at these major variables. The challenge to the policy researcher and to the social scientist is to design programs capable of directly manipulating these variables and thereby equalizing educational opportunity. (See Figure 4)

EVALUATIVE RESEARCH ON PROGRAMS

Evaluative research deals with measuring the effectiveness, efficiency, and equity of programs designed to counteract the impact of the variables which affect entrance, persistence and achievement of students from disadvantaged environments.

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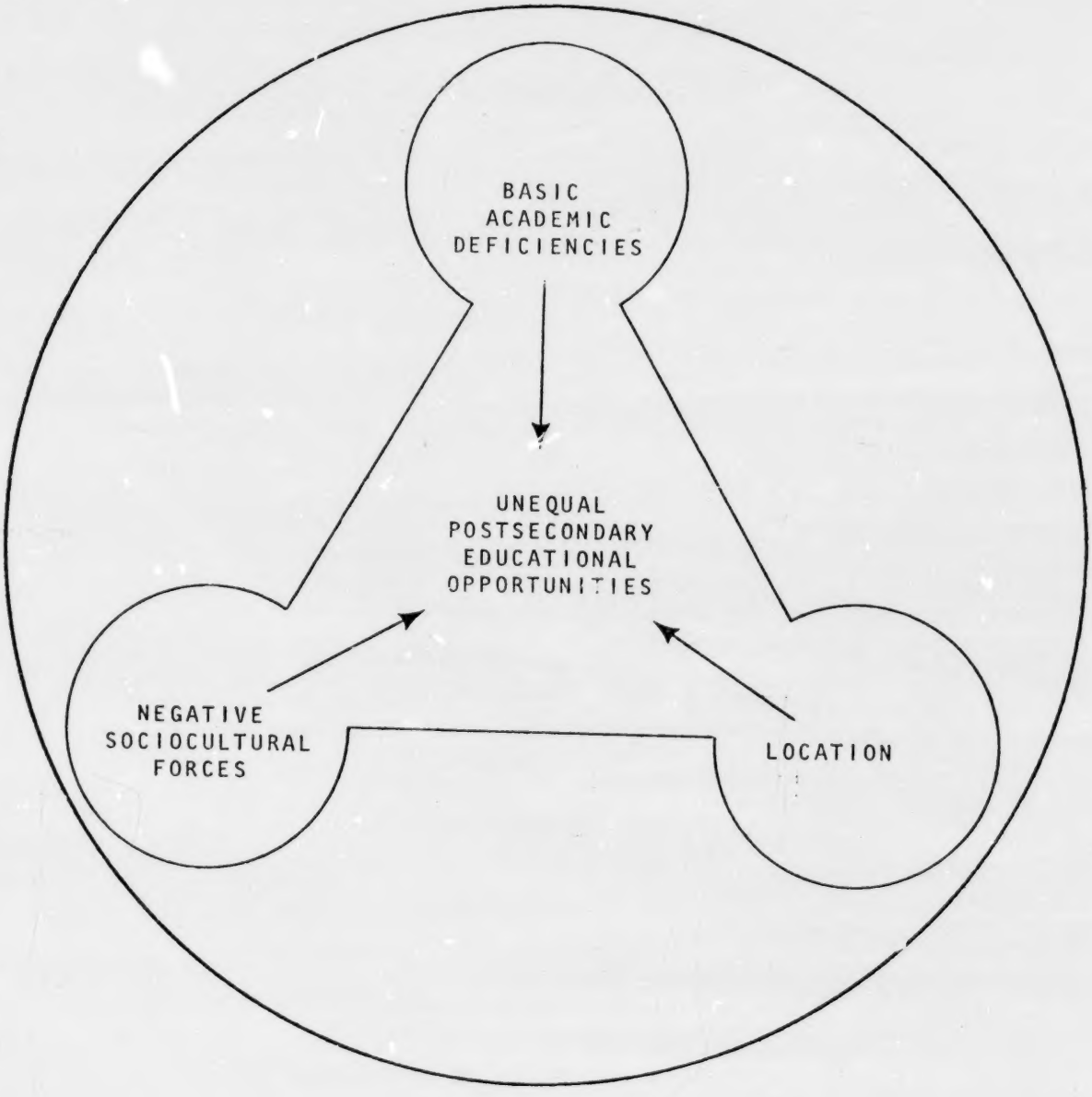

Figure 4

SYSTEM OF FORCES LIMITING
EQUALITY OF POSTSECONDARY EDUCATIONAL OPPORTUNITIES

The effectiveness of such programs is indicated by how and to what degree the program is attaining its immediate objectives; the efficiency of the program is determined by how well the objectives are being attained in relation to the inputs of time, money, manpower, and resources; equity reveals whether the benefits of the program are directed toward the target population in a fair and just manner giving priority to those who have most claim on priority.

There have been responses to the need for compensatory education for disadvantaged groups by institutional, state and national programs. Attention in this report was given to such national programs as Upward Bound and the Educational Opportunity Grant; state programs like the New York Higher Education Opportunity Program (HEOP); and institutionalized efforts of two- and four-year colleges and universities across the nation.

Evaluation and Implications of Evaluative Research

Major methodological weaknesses were found in the evaluation of federal and local institutional programs designed to equalize educational opportunities:

1. Attempts were made to measure program effectiveness and efficiency by ultimate goals, such as, retention, grade point average, and graduation, rather than by immediate, specific measurable objectives.

2. Lack of specification of immediate program objectives and lack of measurement criteria hindered the identification of the more effective from the less effective programs and program components.

3. Lack of a systematic information and feedback system to guide decision making and improvement made effective evaluation difficult or nearly impossible.

4. Evaluative research in the absence of criteria of effectiveness resulted in mostly descriptive rather than evaluative studies. Evaluation, when attempted, generally resorted to subjective and qualitative judgements.

5. Lack of instruments for the direct measurement of process outcomes impeded evaluation efforts.

6. Lack of trained personnel to staff compensatory and developmental skills programs was universal.

What bearings do our findings have on policies and programs designed to reduce inequality in postsecondary education? We advocate a more specific evaluative approach based on a modern cybernetic feedback system whereby programs are monitored on a day-to-day basis, and information for decision making is communicated for improvement and adjustment of each component of the system in relation to specific program objectives. Our evaluation also raised the question of whether programs were based on adequate needs assessments, and whether instruments to measure needs were adequate.

It is imperative to seek instruments which approach the scales used to measure inputs of time, money, manpower and resources. Attempts must be made to devise interval scales to measure more accurately units of progress in basic skills and motivation. If interval scales are not possible, at least more refined ordinal scales must be attempted.

The need for evaluators to measure effectiveness, efficiency, and equity by specific, immediate program objectives appears obvious, and yet it has been consistently absent in the literature evaluated.

If the socioeconomically disadvantaged student, with academic potential but lacking basic skills, were discovered early, teachers and counselors could be alerted to his/her potential. Specially trained personnel could adequately provide a developmental skills program in response to student needs. The pupil could then acquire at an early stage, the necessary academic skills long before he/she reached the postsecondary level.

There can be little hope that evaluative research will make significant strides in the near future until programs install cybernetic feedback systems; nor will evaluations be otherwise based on more solid foundation than the rhetoric of subjective estimations. Thus the measurement problem and cybernetic feedback problem are interconnected.

RECOMMENDATIONS

Lack of academic competencies emerged as the greatest barrier to universal access, achievement and persistence, Postsecondary institutions lack both the resources and trained personnel to deal with high academic risk students: their traditional philosophy of scholarship and excellence, their structure and organization are not responsive to students

who lack the very basic skills required to complete successfully their elementary and secondary schooling. The inadequacy of pre-college education still prevents many Americans from developing their full potential and from having equal access to postsecondary institutions, as well as to valued positions in society.

With regard to the high-risk student and the inadequacy of his prior education, we recommend that several interrelated steps be taken by federal, state, and local institutions at every level of the educational ladder. (See figure 5.)

Specific Recommendations:

#1 That the Office of Education establish a research team a) to select a random sample of elementary and secondary schools; b) to develop and establish in these schools competency levels for grades one through twelve for oral and written communication skills, for reading and math skills, and that this integrated program be labeled the Developmental Skills Program.

#2 That the Office of Education establish a research team to assist in the organization of a developmental skills program by:

- developing diagnostic materials for identifying and assessing student's needs in grades one through twelve in the three specific skill areas: oral and written communication, reading and math skills
- designing a competency-based curriculum to meet the identified needs;
- developing specific measurable objectives for acquiring academic skills, study habits, and increasing motivation for continuing on the educational ladder.

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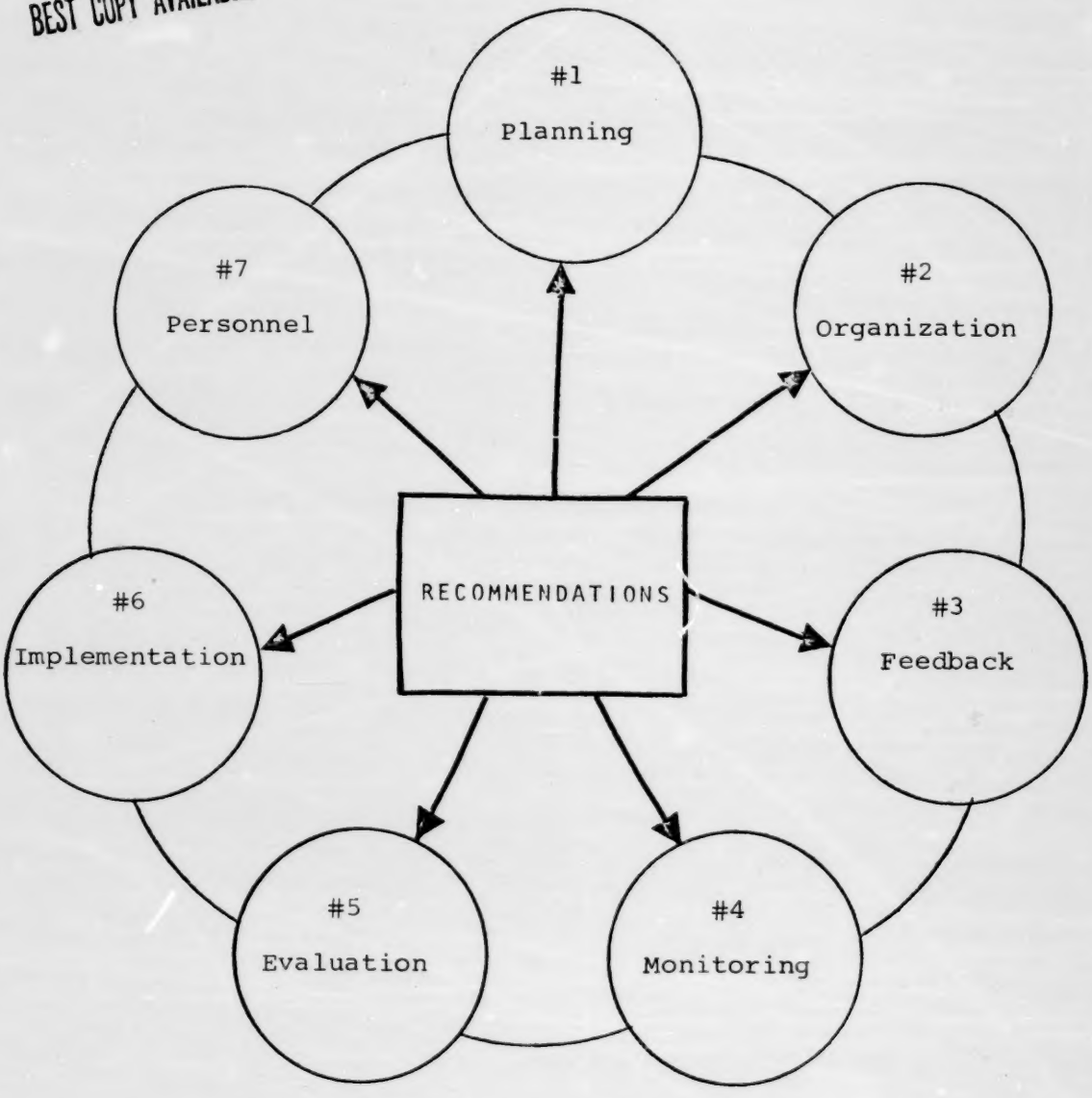

FIGURE 5. POLICY RECOMMENDATIONS

NATIONAL DEVELOPMENTAL SKILLS PROGRAM

#3 That the Office of Education establish a research team to improve and develop information management and feedback systems for an integrated developmental skills program, in order to provide directors with data needed in developing, planning, and evaluating programs. The system should provide program managers with the tools to collect the data necessary to:

- assess the specific skills developmental needs of students;
- identify major problems that must be dealt with, such as, linguistic interference from a foreign language or dialect;
- implement an instructional methodology responsive to the students' needs, background, etc;
- measure progress at set intervals toward meeting stated immediate goals established for each level and stage;
- assess the effectiveness and efficiency of the developmental skills program; and
- implement an effective cybernetic systems model.

#4 That the Office of Education strengthen program monitoring to insure that all components operate in accordance with ultimate program objectives and in the attainment of immediate objectives standardized for each grade level.

#5 That the Office of Education develop a long-range evaluation plan for assessing the effectiveness of the developmental program in meeting both short-range and long-range goals.

#6 That the Office of Education simultaneously insure that postsecondary institutions which enroll federally assisted disadvantaged students provide a developmental skills program, and require that such programs be organized and implemented according to certain specific levels of competencies as recommended for the elementary and secondary schools,

with greater concentration on goal achievement within a shorter time span. This includes the establishment of:

- specific levels of competencies for post-secondary education;
- comprehensive assessment of students' academic needs;
- specific measurable objectives for developmental skills: oral and written communications skills, reading and math skills;
- information management and a feedback system which daily monitors the program on various stages;
- comprehensive evaluation plan in accordance with national guidelines.

#7 That the Office of Education encourage and colleges and universities support the nation-wide skills programs in establishing associate, baccalaureate, master's and doctoral programs to prepare technicians, paraprofessionals, specialists, and professionals able to staff elementary, secondary, and postsecondary developmental skills programs.

Implementation

Although federal programs to assist the academically disadvantaged student exist, they are a limited "crisis response" rather than an efficient, total response to the problem. The locus of the national developmental competency-based plan proposed in this report is within the regular program for students at all levels of schooling. It involves a comprehensive needs assessment of all students measured by national competency norms, and a direct response to identified needs by developmental skills personnel.

This new approach necessarily includes revision of present language arts, reading, and math classes which have traditionally--and unsuccessfully--attempted to teach the developmental skills. It also calls for a trained developmental skills teacher rather than a teacher trained in college literature, mathematics, or a general elementary curriculum.

It is feasible for colleges and universities to train developmental skills teachers who would be certified in that area. During the period of transition, it would be necessary to conduct in-service workshops, seminars, and the like until requirements for certification are met. The necessary implementation step over the next decade can be summarized as follows:

The Federal Government will:

- Set nationwide standards for basic developmental skills; oral and written communications skills; reading and math skills.
- Establish or contract research teams to begin pilot developmental programs on all levels within the regular academic curricula as normal and legitimate academic components.
- Establish a comprehensive evaluation plan for developmental skills programs.
- Continue present financial aid programs for disadvantaged youth on all levels while proceeding with the implementation of the national plan.
- Provide funding for implementation of recommendations.

The State Government will:

- Establish a body to insure that national standards be adhered to and attained at state and local levels.
- Assume greater responsibilities for establishing and measuring competencies.
- Provide adequate support to maintain the quality of developmental skills programs.
- Cooperate and support experimental pilot developmental skills programs in the State.
- Certify teachers and other personnel trained for developmental skills programs.

Colleges and Universities will:

- Carefully study and evaluate existing developmental studies programs with an eye to adjustment and improvement.
- Consider resources and capacity for training, technicians, paraprofessionals, specialists, and professionals to implement and operate, counsel and teach in developmental skills programs.
- Consider initiatory role in providing workshops seminars, and conferences to discuss possible manifest and latent consequences of implementation of developmental skills programs into the regular academic curricula on all levels of schooling.
- University based social scientists and specialists in measurement and evaluation techniques will assist in developing measures for needs and skills assessment; carry out evaluative research and analysis on the proposed national developmental program.

Elementary and Secondary Institutions will:

- Establish competency levels for developmental skills from grades one through twelve in accordance with national guidelines.

- Provide for the implementation of the developmental skills program.
- Provide for management information and feedback systems to assure program effectiveness and efficiency.
- Provide a comprehensive needs assessment.
- Evaluate the developmental skills program according to the guidelines established by the federal government in the comprehensive evaluation plan.
- Assure that only trained developmental personnel teach in and administer the developmental skills program.

In summary, from our evaluation of the literature on equalizing educational opportunities for the disadvantaged, two conclusions emerged: first, the general deficiency of evaluative research, and secondly, the limited, piecemeal nature of programmatic "crisis response" to an enduring national problem. There is at stake a policy decision of considerable magnitude, whether to continue meeting the problem with disparate and uncoordinated efforts, or to engage the problem with a response integrated into the structure and fabric of the educational system.